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THE HARVARD UNIVERSITY HERBARIUM

by

Reed C. Rollins (Cambridge, Mass.)

An important investment in Taxonomic Botany has recently been made by the President and Fellows of Harvard College in the form of a new, fully equipped building located at 22 Divinity Avenue in Cambridge, Massachusetts. This building, named the Harvard University Herbarium, brings together under one roof a major portion of the herbarium and library of the Arnold Arboretum, the Gray Herbarium, the Orchid Herbarium of Oakes Ames, the herbarium of the New England Botanical Club, the palaeobotanical collections of the Botanical Museum and the wood collections of the Arnold Arboretum. The Farlow Reference Library and Herbarium of Cryptogamic Botany, while not within the new building, strictly speaking, has been brought into close association by two connections between the buildings. Provision has been made for graduate and undergraduate instruction in Taxonomy, Dendrology, Mycology and Palaeobotany but most of the building is devoted to the collections and research space required for investigative work involving them.

The construction of a building primarily for the purpose of housing herbaria and associated research activities does not occur frequently. For the benefit of those who may sometime be in the position of planning such a building, I have tried, in the following pages, to bring together some of the thoughts and ideas that led up to and were current during the planning and construction of the Harvard University Herbarium. Furthermore, it has been my aim to give the reader some conception of what the building is like, and the research that is at present under way within it.

The idea that the various herbaria and libraries concerned with taxonomic research in botany at Harvard University should be brought together in a single location began to take form more than twenty years ago. The late Professor Oakes Ames, during his tenure as Chairman of the Council of Botanical Collections, promoted active cooperation, including exchanges of staff members and students among the various separately endowed botanical units of the University. When Dr. E. D. Merrill became Administrator of Botanical Collections in 1935, he suggested, in his report to the President of the University [1]), that it would be to the advantage of all three if the herbarium and library facilities of the Gray Herbarium, the Arnold Arboretum and the Farlow Library and Herbarium could be concentrated in one locus. Many times during succeeding years the general proposition of bringing these separately maintained botanical departments into close association was discussed. However, the situation remained static until, at the Dean's request, Professor I. W. Bailey of the Arnold Arboretum brought together a report to the Dean of the Faculty of Arts and Sciences which he titled "Botany

[1]) Official Register of Harvard University XXXIV. 293. 1937.

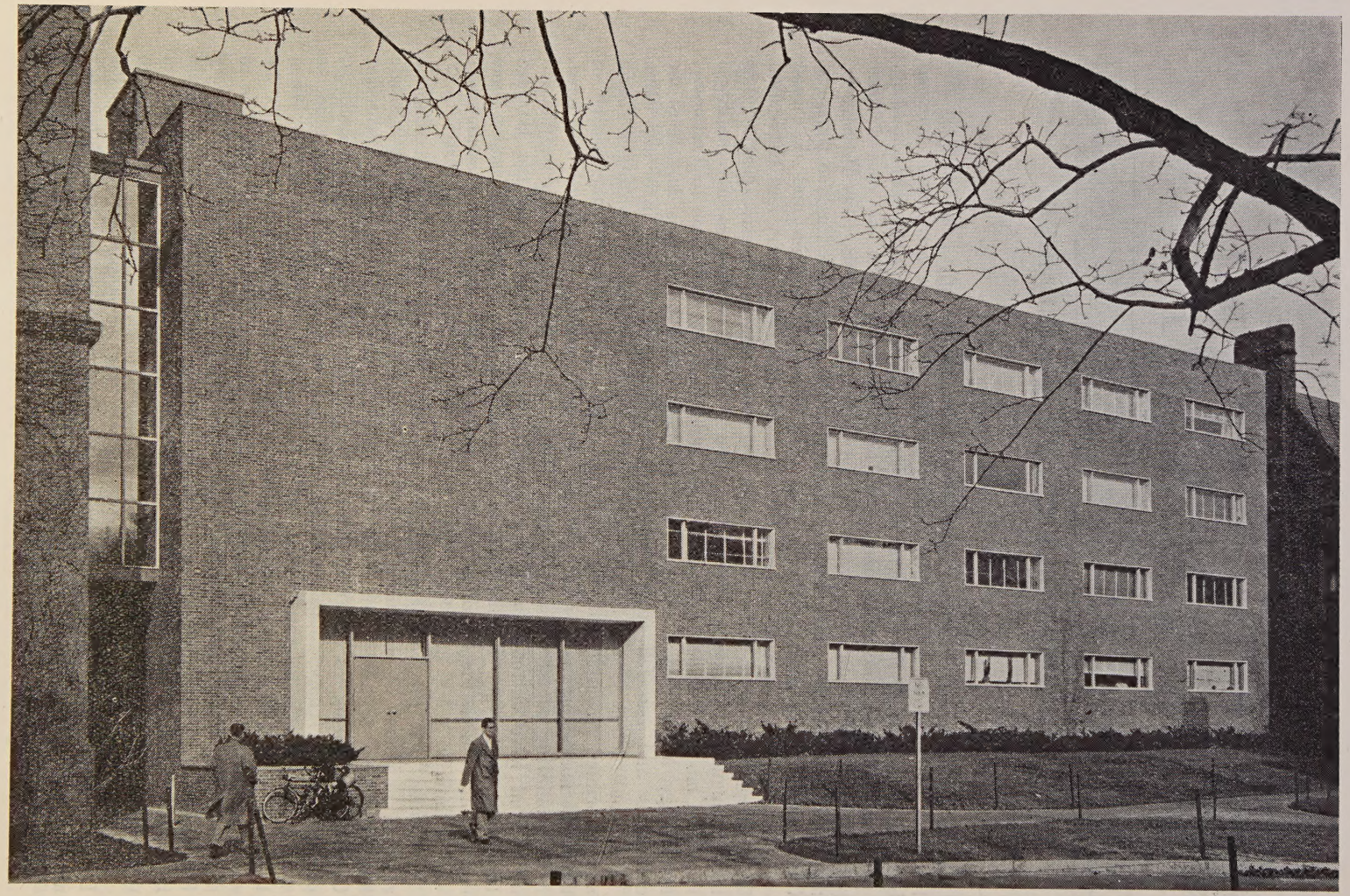

Plate 1. The Harvard University Herbarium viewed from Divinity Avenue. All photographs, including Plate 1 and Figs. 1—8, were taken by Mr. Walter R. Fleischer.

and Its Applications at Harvard." In this report [1]) Professor Bailey briefly reviewed the history of each of the botanical agencies, pointed out their present rôle in the University and made recommendations for an administrative organization that would permit and encourage much closer cooperation in all phases of activity than had ever been achieved in the past. The report reflected Dr. Bailey's broad and penetrating understanding of the past accomplishments of each agency and an acute awareness of the needs of each for the future. One of the important features of the report was the recommended construction of a new building located near the Biological Laboratories in Cambridge to house several of the scattered botanical agencies. This has now been accomplished in the Harvard University Herbarium.

Starting with the first rather elaborate plans, I should like to set forth some of the considerations given to this building over a period of several years. The Corporation of the University provided a sum of one million dollars for the construction and equipping of the building. At the outset, it was thought the building could house the Botanical Museum, the Farlow Library and Herbarium, the Gray Herbarium and the Herbarium and Library of the Arnold Arboretum. However, housing the famous Ware collection of glass models of plants belonging to the Botanical Museum posed certain problems that were hard to solve. For example, over two hundred and fifty thousand persons visit these glass models each year. To provide a public area where the steady flow of visitors could be accommodated and at the same time preserve the privacy necessary for effective research and teaching proved to be very costly. At an early stage in the planning, it became evident that space for the glass models could not be included. Further study showed that the space requirements for all departments first considered could not be met within the budgeted amount. Eventually it was found feasible to construct the building attached to the Farlow Herbarium at one end and to the Museum of Comparative Zoology at the other. This permitted the Farlow to remain in the building where it has been traditionally housed, though closely associated with the new one. Provision for the modernization of the basement area of Farlow and the construction of a passageway through it into the Biological Laboratories at the basement level was provided in the plans. The new building was finally constructed to house the Gray Herbarium in its entirety, the major portion [2]) of the herbarium and library and the wood collection of the Arnold Arboretum, the Oakes Ames Orchid Herbarium and library and the Palaeobotanical Collections of the Botanical Museum.

General Features

The building is rectangular, with a flat roof, and measures 140 feet long by 60 feet wide (Plate 1). The long axis is oriented in an east-west direction with the main entrance on the south. There are five floors, including the bottom floor which is about one-fourth underground. The building is fireproof throughout. The chief material of construction is poured reinforced concrete. The inner walls and partitions are constructed of porous cinder blocks. On the exterior of the building the cinder blocks are faced with tile which is, in turn, covered with an outer wall of brick. The reinforced concrete floor-ceiling combination, though structurally as strong as a concrete slab of equal thickness, was made lighter and more attractive on the ceiling side by the use of inverted steel pans to hollow out the concrete from below. These pans were arranged in a geometric pattern and, when removed,

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[1]) Botany and Its Applications at Harvard 1—93. 1945. Published by the University.

[2]) A herbarium of cultivated material, consisting of over 100,000 specimens, and a horticultural library of over 8,000 volumes remain in Jamaica Plain.

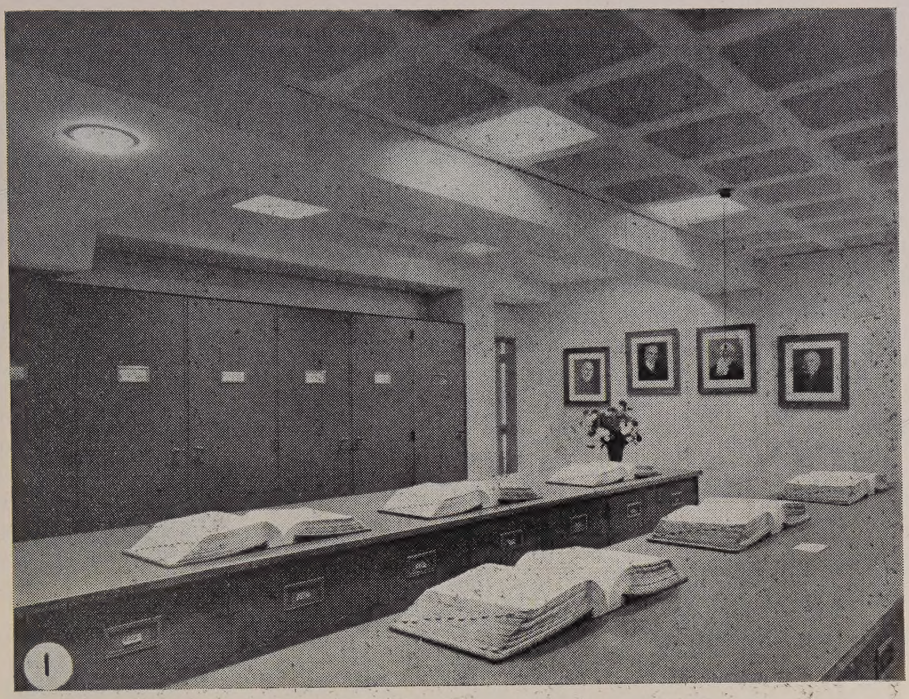
produced an attractive ceiling of ribs and depressions of finished concrete (cf. Fig. 1—4, 7, 8). These depressions were effectively used for the recession of light fixtures into the ceiling (Fig. 3). The double doors permitting entry into the Museum of Comparative Zoology on the second floor form a link between the library of the new building and that of the Museum. The second floor elevation was deliberately planned tot match the library floor of the Museum so that books could easily be taken back and forth. The M.C.Z. library, consisting of over 200,000 books and bound pamphlets, is especially rich in the older works of natural history. To this library the botanist turns for some of the older natural history works and when seeking the occasional botanical article in a journal that is primarily zoological. Two connections link the new building with the Farlow Herbarium and Library. One permits entry into the front hall of the Farlow from the first floor and the other joins the ground floor with the basement. The latter connection is very important because it extends into the Biological Laboratories where the only supply of chemical stock and an instrument room is maintained for the biological scientists of the University. The differences in the levels of all three buildings were carefully bridged by ramps so that heavy equipment could be quickly and easily moved from one to the other.

Two elevators and two stairways connect the five floors of the building. A freight elevator, near the stairs at the northeast corner, serves as an effective means of shifting herbarium material between floors. Being large enough to accommodate two herbarium cases with ease, it was used in moving all of the cases to the upper floors. A smaller, passenger elevator is located near the main entrance and the other stairway at the southwest corner of the building.

Important features of the new building are its air-conditioning and humidity control. Air entering the building is passed over electronic precipitators which clean it of dust, soot and other inert matter. The air is then cooled or warmed as required, brought to the proper degree of moisture content, and drawn or forced through ducts into the various rooms. Some of the air is recirculated but fresh air is constantly being drawn in from the outside. Not only does the air-conditioning system produce a relatively uniform and comfortable atmosphere in which to work, it is of even greater importance in the proper care and maintenance of the books and specimens. The herbarium and library can be kept dirt free and the relatively constant temperature and humidity of the air are excellent for the preservation of books and specimens. A natural consequence of air-conditioning is the use of permanent immobile windows. These are the large, clear, double-pane type, with a dead air space sealed between the two panes. Radiation through the windows is reduced to a minimum. A maximum of light enters because the double-pane glass covers the full dimensions of the windows without obstruction (cf. Fig. 3).

Lighting throughout the building is excellent. The individual rooms have reflected ceiling light and a fluorescent type lighting is used in the library. In the herbarium, broad beam lights with coated reflectors are used. These project the light along the fronts of the cases all the way to the floor. Herbarium material is readily seen even in the bottom compartments. Certainly one of the most outstanding features of the building is the remarkably good lighting.

Certain problems in communication are presented in a large herbarium with its numerous cases, many areas of work-space, some at relatively remote distances from a central office. Without some special means it is often impossible to locate a given person quickly. To meet this need a teletalk system was installed. By this means it is possible to locate individuals and communicate with all parts of the building from a central location.



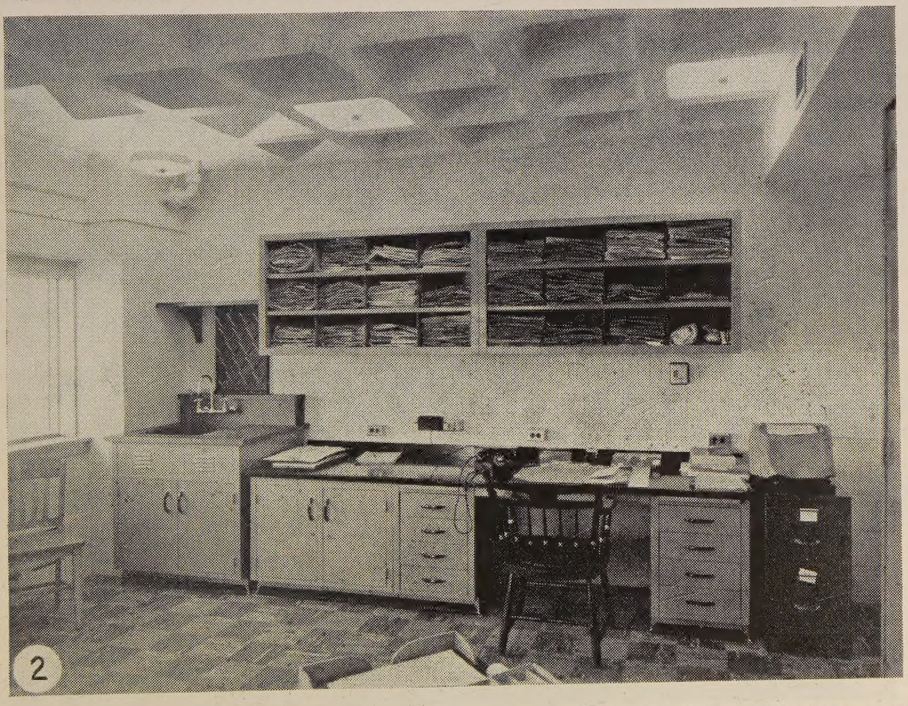


Fig. 1 & 2. Fig. 1 shows part of the area at one end of the third floor. Herbarium cases with table tops hold the large folios of Index Kewensis combined from the original volumes and the supplements. In Fig. 2 is shown a research table, sink unit and sorting rack. These items (excepting the sink in some) are along one wall of each of the herbarium research rooms.

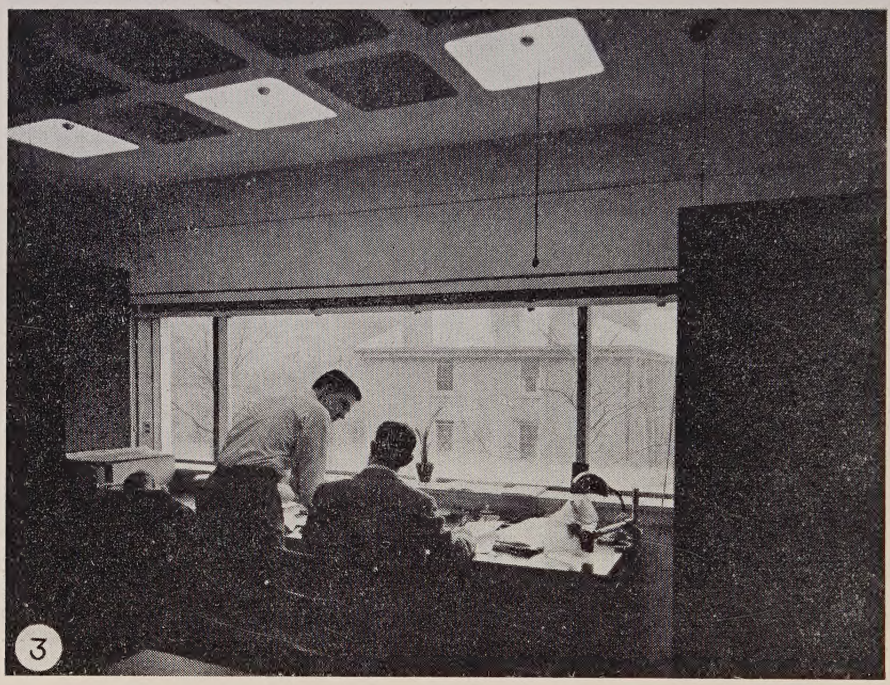


Fig. 3 & 4. In Fig. 3 is shown research space before one of the windows of the herbarium area on the third floor. Note the lights recessed into the ceiling.
Fig. 4 shows the sorting area on the ground floor.

Ground Floor

The ground floor has a combination lecture and seminar room, with an adjacent laboratory, for instruction in systematic botany. A large central room has an open area (Fig. 4) with sorting tables and banks of herbarium cases on two sides. These cases are used for the temporary storage of unworked specimens or those waiting to be mounted. A combination receiving and mounting room is provided with herbarium cases, wall cupboards, table and counter space, and a sink. One room is used for the drying of specimens and the storage of shipping materials, mounting paper, genus covers, etc. There is a room devoted to the storage of publications and one to general storage. In addition, this floor has a dark room for photography, a carpenter shop and grinding room, and a fumigating room. The latter has a small, inner, shelf-lined room that is completely air-tight. Small doors operated from outside this room permit the fumigant to be exhausted through a pipe opening to the roof. At the end of a fumigation operation, an electrically operated suction fan on the roof quickly pulls noxious fumes from the fumigation chamber. The fumigation room was planned to adjoin the receiving and mounting room and the work space where much of the sorting, drying and other preparatory work with specimens is done. No specimens are moved into the herbarium proper until they have been fumigated.

First Floor

The main entrance opens into an unusual and impressive foyer at a level a few steps below that of the first floor. The outside front wall of the foyer is entirely of glass. Its curved inner wall of attractive design is of cedar shiplap, with vertical lines extending from floor to ceiling. Granite blocks form another wall that extends to the ground floor. On the first floor is found the Oakes Ames Orchid Herbarium, together with its excellent library of the *Orchidaceae* (Fig. 7). This is a self-contained unit, occupying a large room, with adjacent hall display space. Woods, fruits, seeds, and the microscope slide collection of woods and pollen occupy one large room, and there is laboratory space adjacent to the cases containing these materials. Another large room houses the palaeobotanical collections, again with much adjacent laboratory space. A chemical hood and a centrifuge are prominent here. A laboratory for instruction (cf. Fig. 8), three combination office-laboratories, and a photographic dark room complete the work area of this floor.

Second Floor

The libraries of the Arnold Arboretum and of the Gray Herbarium occupy about three quarters of the space on the second floor. The reading and reference room has various indices, maps and general works of reference (cf. Fig. 5). Adjacent are three offices for the library staff. The stack area is especially equipped with wide folio shelving so that all large books can be shelved lying down. The stacks accommodate a library of about 100,000 books (cf. Fig. 6). Approximately one quarter of the second floor is occupied by herbarium cases.

Third and Fourth Floors

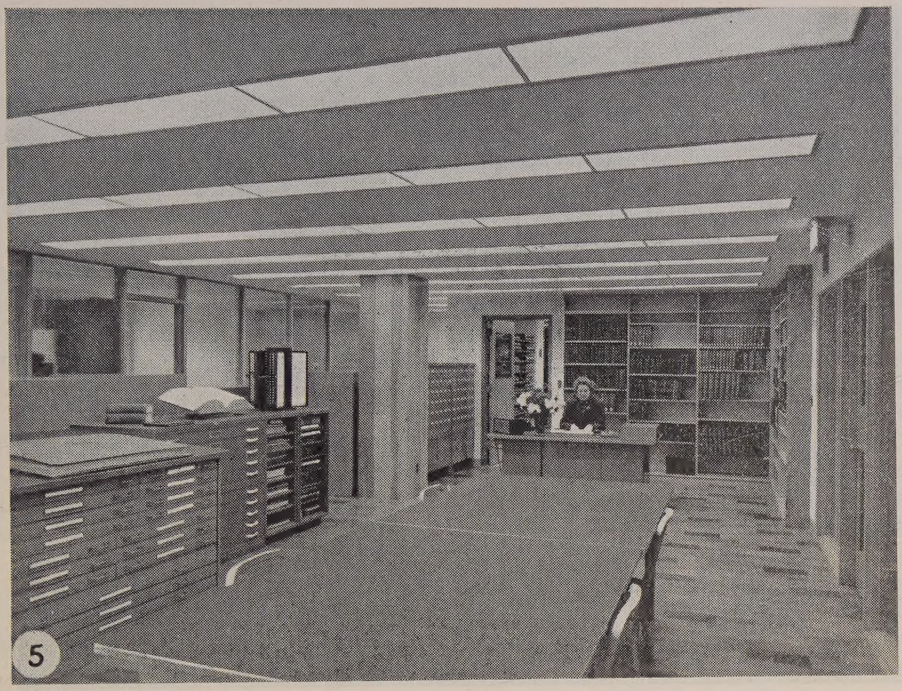
On these two floors are found most of the herbarium cases and facilities associated with research on the herbarium collections. Most of the space along the north wall is occupied by combination office-laboratory rooms. These were designed with special reference to the needs of research workers in taxonomy. In each of these a laboratory unit along one wall provides drawer and cupboard

space beneath and microscope work space on top (Fig. 2). Above this unit is an all metal sorting rack of 24 compartments. This was designed to provide for the large amount of surface space demanded by the taxonomist. Each room also has several steel herbarium cases. These are available to the occupant for the temporary storage of specimens under active study. An all metal wall bookcase, a desk, a cabinet, and one to several tables as space permits, completes the compliment of furniture for the rooms, except in some instances where a sink is an added feature (cf. Fig. 2). A room is provided for each member of the permanent staff. There are eight rooms of this type on the third floor and five on the fourth floor.

Along the aisles which run the full length of the building on each floor, there are low, table-top herbarium cases. Each double row of herbarium cases has from 22 to 28 cases in it, depending upon whether support columns for the building fall within the particular row. The building was planned to accommodate a set number of cases between columns, so there is no wasted space. A series of very wide windows extends along the south wall (Fig. 3) together with stand-up height work-benches alternating with tables along the wall space between and under the windows. Narrow bookcases are attached at every available place throughout the herbarium area. This was done with two objectives. It is our intention to place duplicate monographs and other key books pertaining to special plant groups on shelves near the specimens of such groups. Thus a worker in the herbarium will find references to the group on which he is working close at hand. The completeness of coverage by books and pamphlets in the herbarium will depend upon the amount of duplication now existing in the libraries of the Arnold Arboretum and the Gray Herbarium. Only duplicate works will be taken from the library for this purpose. A second objective in having book shelves in the herbarium is to provide for the needs of visitors and temporary workers who may be assigned work space in the herbarium proper. The herbarium was deliberately planned with numerous work areas at convenient locations in mind. More than a dozen visitors and temporary workers can be accommodated in these different work areas (cf. Fig. 3). The fourth floor is similar to the third in its organization except that there are fewer office-laboratory rooms. Furthermore, the herbarium of the New England Botanical Club occupies a distinct part of this floor.

Organization within the Building

The Gray Herbarium, the Arnold Arboretum, the Botanical Museum and the Farlow Library and Herbarium are separately endowed and are maintained as distinct administrative entities within the University. This should be kept clearly in mind by those desiring to understand the organizational set-up in the new Harvard University Herbarium. Each entity is the responsibility of its director. The men involved, besides myself as Director of the Gray Herbarium, are Professor Richard A. Howard, Director of the Arnold Arboretum, Professor Paul C. Mangelsdorf, Director of the Botanical Museum, and Dr. Ivan Mackenzie Lamb, Director of the Farlow Reference Library and Herbarium of Cryptogamic Botany. The Gray Herbarium is wholly within the new building. The Farlow Herbarium is technically a part of the new building set-up although remaining in its former building, but this is not true of either of the other agencies. The Arnold Arboretum maintains within the building the non-horticultural portions of its library and herbarium and the research activities connected with them. The wood samples and the wood and pollen slide collections of the Arboretum, already mentioned, are likewise housed in the building. The horticultural activities of the Arnold Arboretum remain centered in Jamaica Plain, Massachusetts. Additional display and experimental



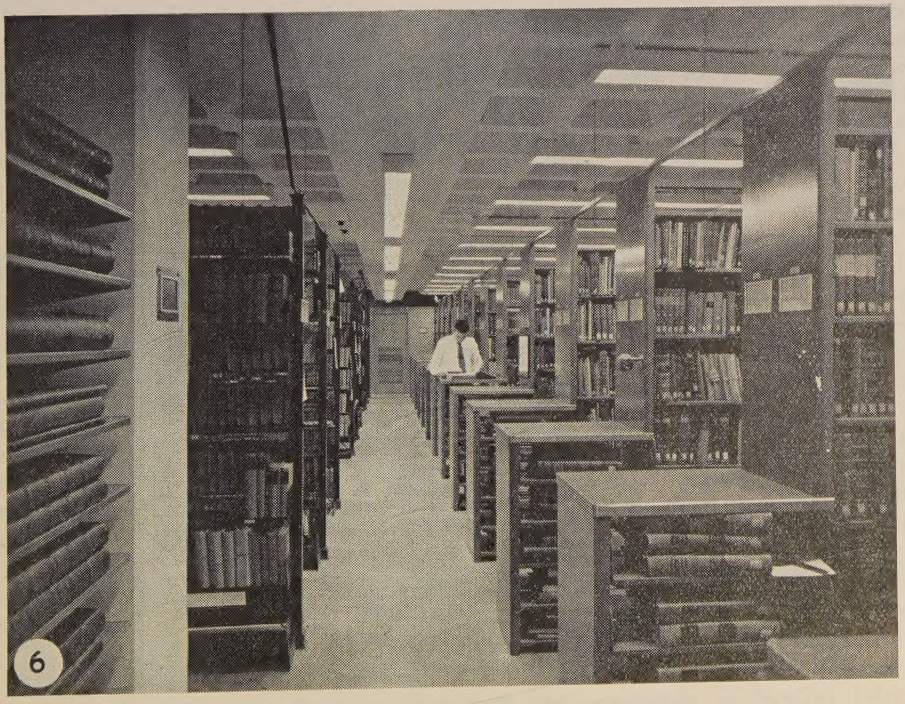
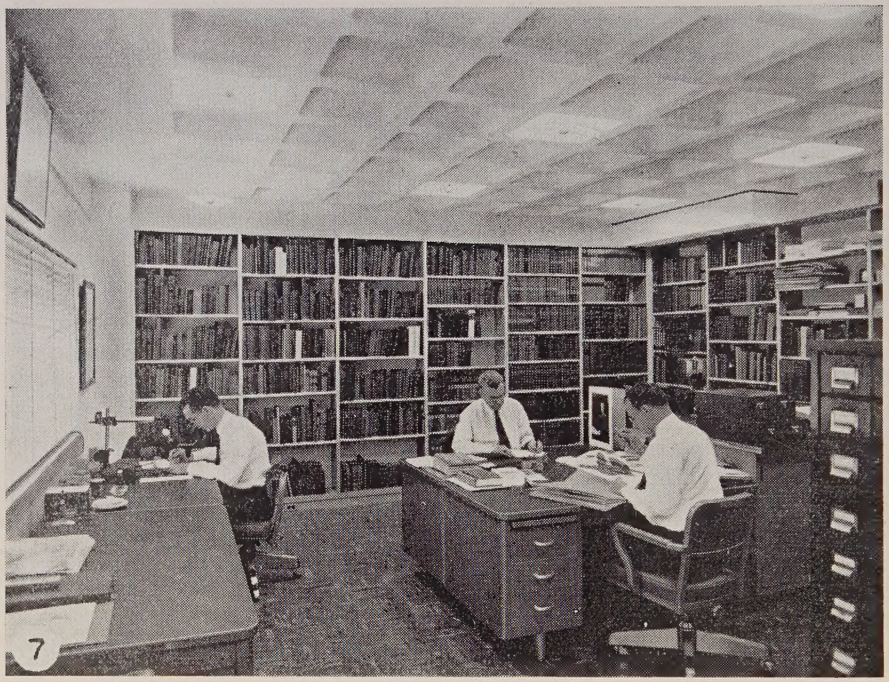


Fig. 5 & 6. The reading and reference room of the library is shown in Fig. 5. Map cases and card catalogues may be seen at left. The photograph reproduced as Fig. 6 shows the middle aisle of the library stacks, taken from between the reference room and stacks.



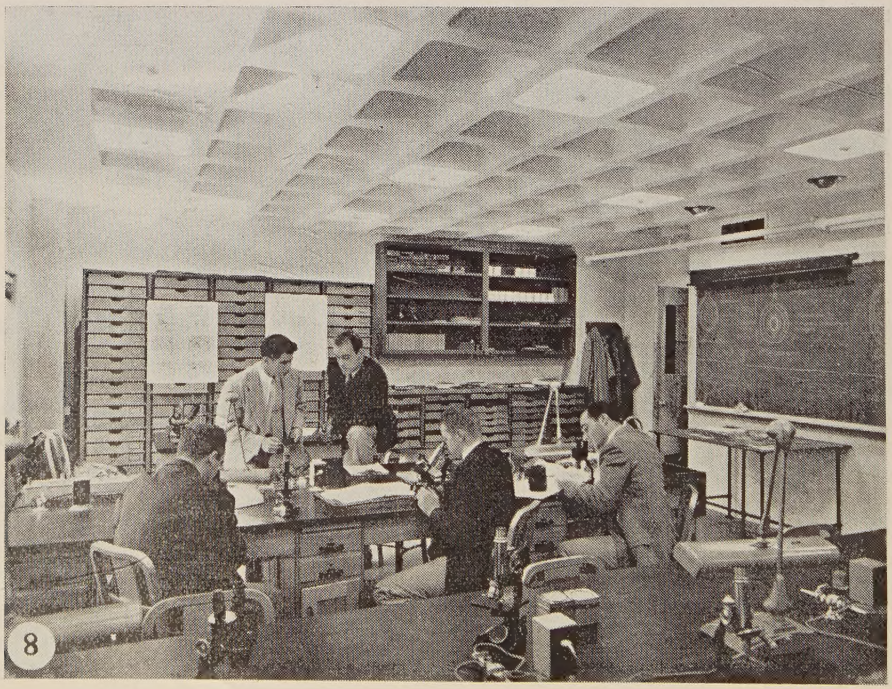


Fig. 7 & 8. One end of the Orchid Herbarium of Oakes Ames is seen in Fig. 7. Herbarium cases occupy about one half of the room, in back of the photographer. Fig. 8 shows a part of one of the two student laboratories. This is the palaeobotanical laboratory on the first floor.

plantings and nurseries are located in Weston, Massachusetts. As mentioned above, the administration building of the Arnold Arboretum in Jamaica Plain houses a large horticultural herbarium and library. The Botanical Museum has its major quarters in the museum building on Oxford Street, Cambridge, where it has been located for many years.

For the present at least, the specimens and books of the Arnold Arboretum and the Gray Herbarium are being kept separate. However, a coordinated action with respect to these is provided by having one person in direct charge of both herbaria. Dr. Clarence E. Kobuski is Curator of the Arnold Arboretum herbarium and of the Gray Herbarium. Similarly, one person is in direct charge of both libraries. Mrs. Lazella Schwarten is Librarian of the Arnold Arboretum and of the Gray Herbarium. Requests for loans will automatically be considered as applying to both herbaria and both libraries. The Curator of the Oakes Ames Orchid Herbarium of the Botanical Museum is Dr. Richard E. Schultes. Professor Elso S. Barghoorn is in charge of the palaeobotanical collections. It should be relatively easy for officers of other institutions to direct their correspondence to the appropriate persons. In general, matters of policy and over all direction of the separate agencies are handled by the different Directors. The Curators and the Librarian deal with specific items within the areas of their jurisdiction.

Research in Progress

Research tends to be centered around individuals, as in most institutions but there are several project-type activities in research under way in the new building.

With the completion of the Eighth Edition of Gray's Manual of Botany, interest in field studies of plants has now shifted to southeastern United States. Research on the area is directed toward the publication of (1) A generic flora of Southeastern United States, (2) A manual of the native plants of Southeastern United States, and (3) A manual of the cultivated plants of Southeastern United States. This work is being led by Dr. Carroll E. Wood, Jr., who is aided by Mr. George R. Cooley, Research Fellow, and by Professors Howard and Rollins.

The preparation of a comprehensive bibliography of the flora of China is now in its second year. Dr. Shiu-ying Hu is leading this work, assisted by Dr. Su-ying Liu and Dr. Yu-chen Ting.

The principal research under way by individuals is as follows:

Professor I. W. Bailey continues his studies of the anatomy and detailed morphology of primitive Dicotyledons. In Volume 15 of Chronica Botanica, just off the press, some of his varied "Contributions to Plant Anatomy" are brought together in a single volume. Professor Bailey is at present re-examining the nodal anatomy of Angiosperms.

Professor Elso S. Barghoorn is in charge of the palaeobotanical collections and directs research in the field of palaeobotany. Together with his students, he has work under way on the palaeobotanical aspects of the origin and dispersal of the Angiosperms. The Pleistocene forest history of eastern North America and the Tertiary floras of the Northern Hemisphere are being actively studied.

Mr. John H. Beaman, graduate student, has a cytotaxonomical revision of *Townsendia* (Compositae) under way. During the past summer, he traveled over 12,000 miles in western United States and Mexico collecting special materials for his study of this genus.

Mr. George R. Cooley is studying intensively the vegetation of Sanibel Island, Florida, in addition to his work on the flora of southeastern United States.

Dr. W. L. Culberson, National Science Foundation Fellow, is at work in the

Farlow Herbarium upon the taxonomy and ecology of the lichens of Wisconsin forests. He is also doing intensive research on a revision of the *Lecanora subfusca* group of lichens, aided by Mrs. Culberson, who is a biochemist.

Mr. Robert L. Dressler, graduate student, is preparing a monograph of *Pedilanthus* (Euphorbiaceae). In addition, he is working up a collection made by him during the past summer in the state of Chiapas, Mexico.

Dr. Robert C. Foster has under preparation a catalogue of the flora of Bolivia which is nearing completion.

Professor Richard A. Howard is pursuing systematic studies of the spontaneous and horticultural vegetation of tropical and subtropical America. He has in preparation a monograph of *Coccoloba* (Polygonaceae) and a flora of bauxite soils. For several years Professor Howard has had a continuing research program concerned with the anatomy and detailed morphology of the petioles of Angiosperms.

Mr. Francis W. Hunnewell continues field work in the state of Virginia. For several years he has made collections of phanerogams and studied the flora of different islands in the West Indies. Mr. Hunnewell contributes most of his time to curatorial activities for the New England Botanical Club.

Dr. Clarence E. Kobuski has been working on the taxonomy of the Theaceae for a number of years. He has under preparation a monograph of *Ternstroemia* and a treatment of the Theaceae for Flora Malesiana.

Dr. I. Mackenzie Lamb has just completed papers on the lichen flora of the parks of Argentine Patagonia; new, rare or interesting lichens from the Southern Hemisphere; and the frutescent Lecideaceae. At present he is at work upon a monograph of the Stereocaulaceae.

Mr. Irwin E. Lane, graduate student, is at present on leave as a Fulbright Fellow. He is continuing research toward a monograph of *Heliconia* (Musaceae) at the Botanische Staatssammlung in Munich. He will return to complete degree requirements next year.

Dr. Lily M. Perry continues her taxonomic work on the flora of New Guinea. She is now concerned with the most recent collections of L. J. Brass.

Professor Reed C. Rollins' research centers on the taxonomy of the Cruciferae and upon problems associated with role of hybridization in the evolution of higher plants. Hybridization in *Lesquerella* and cytotaxonomic monograph of this genus are under way. A monographic treatise of *Menonvillea* and related South American genera of the Cruciferae is being brought to completion.

Miss Edith Scamman is working on collections of ferns she has made on two different trips to Costa Rica. Miss Scamman continues her interest in the flora of Alaska.

Dr. Richard E. Schultes has a treatment of the Orchidaceae under preparation for the Flora of Trinidad. He is making preliminary studies on the orchids of Colombia and is finishing a monograph of *Hevea* (Euphorbiaceae).

Mr. Charles Schweinfurt has been devoting the major part of his research efforts to a taxonomic treatise of the Orchidaceae of Peru. A manuscript covering this large family, as it occurs in the Peruvian flora, is nearly complete.

Dr. Grady L. Webster, National Science Foundation Fellow, is finishing a revision of the West Indian species of *Phyllanthus* (Euphorbiaceae). His present research includes an investigation of pollen, fruit and seed morphology of *Phyllanthus* and related genera.

Dr. Carroll E. Wood, Jr., is working on problems of cytology and hybridization in *Drosera.* He has in preparation papers on the taxonomy and cytology of *Robinia* (Leguminosae) and on the cytogenetics of *Downingia* (Campanulaceae). Dr. Wood is also doing research toward a monograph of *Hedyosmum* (Chloranthaceae).

TOWARD NOMENCLATURAL STABILITY

by

H. W. Rickett (New York, N. Y.) and W. H. Camp (Storrs, Conn.)

Now that the rules have been hashed and rehashed, their verbiage clarified, their holes plugged, their intrinsic contradictions at least partially resolved, the supreme question of nomenclature emerges all the more clearly: how can we stabilize specific names? For years now we have had to submit to the displacement of familiar and well-established names by prior names unearthed in obscure and forgotten works, often dealing primarily with horticulture, agriculture, or travel. There seems to be no future limit to the process. The problem confronts every botanist, every one who uses plants and products of plants, every forester, every horticulturist. It is not merely a question for taxonomists; indeed the professional taxonomist is less inconvenienced than others by the changing of names, for he is accustomed to dealing with lists of synonyms and with the necessary complex bibliography; but nevertheless the solution of the problem is the responsibility of the taxonomist, and one which he can no longer avoid. There were signs at the Paris Congress that those who were gathered in the Section of Nomenclature were more aware than ever before of the reality of the problem and of their own responsibility in it; the creation of the Special Committee on Stabilization is to be welcomed by every one.

The letter circulated by the Chairman of this committee, J. S. L. Gilmour, and published in Taxon (3: 243, 244. N 1954) presents in summary form the remedies that have been from time to time proposed for the mutability of specific names. This summary is taken as the basis of the comments which follow; which in turn lead up to our own proposal.

(a) *The conservation of specific names.* This would seem to be the „logical" method: to do with specific names as we have done with generic names and propose to do with familial names. Botanists unfamiliar with the problems of taxonomy have often come to us with the suggestion that *all* names be conserved once and for all. The argument that has again and again defeated the proposal is simply that it is impractical, that it would necessitate the activity of a vast force of clerical botanists. When we survey the history of conservation of generic names, we must admit the truth of this contention. The principle was adopted without serious misgivings in 1905 for application to the 81 genera "of more than a merely scientific interest, or that are very large" proposed by the German group. Everyone knows what has happened in the 50 years since then; and the end is not in sight, the list of conserved genera seemingly undergoing enlargement by geometrical progression with each successive congress. Whether it has been a good or a bad thing is perhaps a matter of opinion; but there is no question of the extensive bibliographic research that it has entailed; and there can be no question of the vast amount of such work that would be required if we were to embark on a similar process for specific names. Perhaps if it were practicable to limit the *number* of conserved names in some way, the principle could be accepted; its proponents have always insisted that it would be used for relatively few names, those of economically important plants. On the dangers of such arguments see below.

(b) *The rejection of specific names.* The proposal to create a list of specific names which cannot be used was made by the British botanists and ably defended by them at Paris. It avoids some of the difficulties of conservation. It would not be necessary to typify the names to be rejected, since (if we understand the proposal) they would be *absolutely* rejected; they could not be used thenceforth for any plant. Whether they had types or not would be irrelevant. However, the

difficulty of limiting the process would be the same. Gilmour wisely remarks (Taxon 3: 243): "At Paris, some botanists feared that many hundreds of names would have to be included in a list of *Nom. Spec. Rej.*, while others thought that the proposal had come too late, and that there were very few further changes to be made! Clearly no progress can be made on the problem unless the approximate number of actual cases likely to be involved can be assessed." This seems to envisage, on the part of the Chairman of the committee, no absolute limit to the list of rejected names; it is our opinion that to make a proposal based on some "approximate number" which was anticipated would be as delusive as the original proposal of the German botanists for the (anticipated) conservation of about 100 genera (ten times that number have already been conserved).

We have always been assured that names to be included in lists of conservanda or rejicienda would be those of "economic plants"; this would limit their number at the same time as it would apply the stabilizing remedy where it was most needed. But what is an "economic plant"? We are faced here with the same sort of vagueness as we find in the proposal to reject names not "taken up" after a certain date or period of years (see below). We can imagine the interminable wrangles at successive congresses over the official meaning of the word "economic". Plants that until lately were of interest only to the systematist and the phytogeographer, such as *Rauwolfia*, are now used as sources of important drugs or other products; there was even a time when *Solanum tuberosum* was grown only as a botanical curiosity — that time lasted 200 years and more! It might even be argued that a mat of moss or lichen, slowly transforming the components of a rocky ledge to soil, is an "economic" plant, no less so than the subsequent forest, or the crop which follows the clearing of the forest. The Actinomycetes of the soil have recently been found of considerable economic importance -- no one yet knows how much; are they not "economic" plants?

Turning from the primrose path of theory into the stony road of reality, we shall have to face the fact that the definition of "economic" will be a personal matter and will vary with the interests of the persons concerned. The impossibility of assigning a limit to the process of rejection, by a definition of "economic" or by any other means that the present writers can propose, means that the list of rejected names will be one of indefinite length, probably exceeding the length of the list of conserved generic names in the proportion that the number of species exceeds the number of genera in the plant world. And, in fact, it may be more realistic to admit that "what is sauce for the goose is sauce for the gander". If stabilization of names is desirable for some one group of plants, no matter how narrowly defined, then it is a good thing for all plants. That, after all, is the principal object of a code of nomenclature, and has been at least since 1813.

Still another weakness in the method (stabilization by rejection) is that we are dealing with synonyms based usually on different types (if on any) and whose identity is therefore a matter for the judgment of individual taxonomists; not the most stable foundation on which to construct an edifice of rules! In short a name rejected as a synonym of a well-known name may prove, on further study, aided perhaps by the discovery of a collection by the author, to be not synonymous at all, but to apply to a taxon not recognized by others since the publication of the original description. The name, being rejected, cannot be used, and a new name must therefore be created; so the *rejection* of names may even lead to a *multiplication* of names.

(c) *The banning of certain books.* Of this perhaps the less said the better. It is a principle which we should be very reluctant to accept, with its aroma of at least one fortunately extinct dictator. For a scientist to have to scan a list of

"banned books" to find out whether or not he should adopt certain names would be a strange pass indeed. Furthermore, it would be as difficult to gain the consent of all to the selection of the books as it would be for all to agree on what names should be conserved or rejected. And, again, it would not be wholly efficient as a remedy; for many books have yielded names which are now generally accepted — and can still yield additional names to those diligent in searching in obscure places. To ban such books would be to upset present nomenclature; not to ban them would be to fail in the expected stabilization.

(d) *The banning of names not taken up after a certain date.* It is surprising that such a proposal can be seriously made. What is meant by "not taken up"? This seems to be a term impossible of objective definition. Certainly one cannot be sure that a name has never been once used after the specified date; that is, without having read not only every botanical work published since that date but also every work on horticulture, forestry, economic botany, every newspaper, every magazine, in which a botanical name might conceivably have been used. And as soon as a name previously judged "not taken up" was discovered in a work published within the specified period — the stability which we thought we had attained would again vanish like a mirage!

(e) *The recognition in the rules of "economic names" in addition to the strictly correct "botanical names".* But this does not even provide stability. It merely indicates the despair to which we have been driven. We draw up a set of rules for naming plants and at the same time admit that the names which satisfy the rules are not suitable for general use and so we agree to recognize others, not in accord with them. We take away with one hand what we give with the other!

If none of the proposed measures will actually bring stability of names, are we then to acquiesce in the present situation, to say, in effect: "These are the right names, which you should use; if you don't like them, so much the worse for you"? There is, however, another kind of proposal which has been made but curiously omitted by Gilmour in his letter; to be sure, it was made (by one of us) without proper analysis and explanation, and seems to have been generally misunderstood, perhaps even by its author! In its former shape (Taxon 2: 213. N 1953) it probably deserved oblivion; the principle involved, however, seems sound to us; some analysis of the problem may help to reveal its bearing.

The prior names which occasion most of our difficulties are usually discovered in long-neglected or forgotten works. The descriptions which accompany the names are usually meager and *are seldom associated with cited specimens* which can now be found and studied. Interpretation of these ancient names is therefore often a matter of personal opinion, and liable to considerable fluctuation. We may assemble what seems to be a reasonable set of arguments in favour of our decision, but, lacking a physical type, we still cannot offer positive proof of identity. By adopting such a name we set the stage for possible confusion beyond the immediate change in name, for a subsequent author may offer as convincing a series of counter-arguments (to him more convincing) on the application of the name. We offer the following proposal as a means of avoiding such situations.

New Article. No name, even if prior, may displace a hitherto accepted name unless it is associated with a holotype cited in the original place of publication.

The obvious loophole in such a provision, if it should be adopted, is that some ancient names might be adequately typified and so would have the right to displace the accepted names. We are firmly of the opinion, however, that such cases would be extremely rare; that, if such a provision had existed in the past, we should have

been spared most of the present confusion caused by the name-changing which is imposed on us by the rules.

Ultimately this provision would be equivalent to the one proposed before, its progenitor: to reject all names not associated with types. The defeat of this proposal was undoubtedly due to the general fear that it meant a vast amount of clerical and bibliographic work in the near future, since it would be necessary to provide every accepted name with a type at once before we could write another flora or manual! The intent was, of course, to provide for rejection of untypified names as it became necessary or advisable; the proposal made above is, we hope, so worded as to make this plain. It is to be understood that the accepted name should be provided with either a lectotype or a neotype if it has no holotype.

The principle of priority was originally invoked only to stabilize names. Unfortunately (as one of us has shown elsewhere), it has had the opposite effect. We have subverted stability to bibliography. We have admitted this by subscribing to the conservation of genera, a troublesome and time-consuming device and one quite impracticable (as it seems to us) for specific names. But meanwhile we have acquired a "type method". This offers a means of stability not foreseen by our nomenclatural ancestors. We should use every effort to expound the type method (still not understood even by some systematists), to make clear that a type is *not* a "typical" or a "representative" specimen, *not* a means of identification, but a device to anchor a particular name. Names which we wish to stabilize can usually be anchored by means already at our disposal. Those which cause confusion and which are not so anchored should be allowed to drift — into the limbo of forgotten things. We have a type method — let us use it.

ONE PLANT NAME IN SEARCH OF AN AUTHOR[1]

by

Jacques Rousseau (Montreal)

Chairman of the Nomenclature Session, in Paris.

When meeting in Paris last summer to add the final touch to the botanical code that was being amended, for the very last time, I am sure, we took up principle IV (Art. 5 of the Stockholm Code) which reads: "In the absence of a relevant rule, or where the consequences of rules are doubtful, established custom must be followed". A shrewd congressist asked for an example to illustrate this principle. The chairman, who had always to pretend that he was fully acquainted with the rules, sought an example, but in vain. Nor was the rapporteur, who, on the other hand, really knew the rules, more succesful; and, likewise, the assistant-rapporteur, and all the honorable delegates who were already an integral part of the Brownian movement of the tobacco smoke.

Such a failure was easy to explain. Were we in position to indicate a case pertaining to this principle, we might have proposed a new rule to answer the question, and incorporate such in the code (as well as bring the appropriate modification to all the subsequent article numbers). Principle IV means substantially: "If between two congresses a taxonomist finds a problem not previously considered, we beg him not to search for a complicated solution and be quiet until the next meeting of the nomenclature section". As long as there will be taxonomists, with no special jail for those indulging in subversive taxonomical activity, such a principle is necessary.

[1]) With due apology to PIRANDELLO for the plagiarism of one of his drama titles.

Just recently, I found a good case to illustrate Principle IV. I owe it to a previous discovery made by St. John and Krauss [1]) and which was in press when we were solemnly debating in Paris. In this benedictine work, one case only interests us here: the problem of *Americus gigantea*. According to St. John and Krauss: "The redwood remains unchanged as *Sequoia sempervirens* (D. Don in Lamb.) Endl. For those who insist that the Big Tree must remain in that same genus, the legitimate name is *Sequoia Wellingtonia* Seem. For those who agree with the writers that the Big Tree is amply distinct and represents a genus, there are still problems in nomenclature". And the authors prove that the other generic or pseudo-generic names proposed, *Wellingtonia* Lindl., *Washingtonia* Winslow, *Gigantabies* J. Nelson and *Steinhauera* Presl, are either illegitimate or invalid. *Sequoiadendron giganteum* Buchholz (1939) appeals to the authors, but unfortunately *Americus gigantea* Anon. (1854) had been proposed previously for the same plant. St. John and Krauss consider that "*Americus* Anon. is legitimate, but not worthy of adoption". Consequently, they "propose that the generic name *Sequoiadendron* be made a nomen genericum conservandum". Until the decision is accepted, there is no problem for those who employ the latin name of the Big Tree. They have simply to stick to *Sequoia Wellingtonia*, although the Bonapartian botanists may have no taste for it. The latter have only to wait until the next Congress while boycotting Big Trees in the meantime.

I agree with St John and Krauss in the choice of the name they made, though I disagree with them on the legitimacy of *Americus gigantea* and in the necessity to place it on the list of "nomina rejicienda".

Let us familiarize ourselves first with the touching history of *Americus gigantea*. If we must make a decision, let's be on the safe side and not run the risk of being accused of anti-American activities by some Wisconsin senator.

A long time ago a giant tree fell in the Californian forests. The fact is quite a familiar one to botanists in their experience with giants. Remember Goliath, Samson and the fate of recent dictators. "In that year (1854), wrote St. John and Krauss, a cross section of a tree recently felled in California was placed on exhibit at the Union Club, New York. A pamphlet announcing the exhibit was printed to arouse interest in it and to draw spectators —" . . . admission 25 cents, children half price." "This was no more a scientific publication than is a circus program or a symphony orchestra program. It was anonymous, but it was printed by the Herald Job Printing Office, New York, and was dated 1854. Besides announcing the exhibit, it contained several articles, mostly reprintings of previously issued articles. The first article on pages 4 and 5, is entitled "The Great Tree of the Sierra Nevada, California", and is a popular account adapted from various other publications. The second article (Anon., 1854: 6—7) is entitled "Gigantic Tree in California"; it was copied paragraph after paragraph from the account in the *Illustrated London News*, February 11, 1854, which was a direct copy of Lindley's accounts in the *Gardeners' Chronicle* (1853a, b), except that in the New York pamphlet the new generic name *Americus* was substituted at every place at which the name *Wellingtonia* occurred in the originals. Thus the new binomial *Americus gigantea* Anon, was published for the big tree."

I have no objection to the exhibition of a Big Tree, even if one had to pay "25 cents, children half price" to see it, though it would nevertheless have cost my father $ 2.25 to see it with his family of fourteen children, a high, respectable sum for an honest man at the time; fortunately my father had not come into the world by then, nor myself. Even at a circuslike exhibition, a Big Tree cross-section is

[1]) St. John, Harold, and Krauss, W. The taxonomic position and the scientific name of the Big Tree known as Sequoia gigantea. *Pacific Science*, 8: 341—358. July 1954.

certainly less suspicious than a giant spider with a human head. (I once paid 25 cents to see such a specimen some 40 years ago and I am quite convinced that it was a fake.) But, in the present case, what I am against are: 1) the publication itself; 2) the author's anonymity:

1) I have not seen the publication itself nor do I need to, since St. John and Krauss' relation of it could not be otherwise than a perfect picture of it. The anonymous publication (not St. John's and Krauss', but the 1854 one) is simply a manifest case of plagiarism. And to such cases, one applies Principle IV (former Stockholm Art. 5). The botanists are not above the law, although this may be convenient occasionally. We have not to repeat in our code the Common law. In any country, the harmed-author, Lindley, would have had the right to bring to court so unscrupulous an author. Any judge would have ordered the pamphlet's destruction, in declaring the afore-mentioned publications as null and void. Furthermore, he would have condemned the exhibitor to pay Lindley, or the Kew Botanical Garden, a reasonable part of the "25 cents (half price for children)". — And we, taxonomists, even if the case is not provided for in our rules, would be obliged to consider the pamphlet as unpublished. Even if Lindley ignored the affair, our Principle IV is precisely in our code to remind us that we are "authorized" to use the decrees of common law and common sense. A pure integral one hundred per cent plagiarism is not a bona fide publication. I am convinced (I was to say "I rule") that the description of *Americus gigantea* is not a legitimate publication.

2) We have no specifically written rule stating "that a plant name must have an author". The *Americus gigantea* author is Anonymous. (A truly prolific author indeed, thus Herr Derselbe of German scientific publications, and M. LeMême in those of the French). When I say that we have no specific rule stating that a plant must have a bonafide author, I rather err. Our code has a whole section devoted to the subject, Sect. 3, Art. 46 to 50 incl. (in Stockholm code, Sect. 7, No. 55—60), without mentioning many other references to it in other rules. Art. 33 (No. 43 of the Stockholm code) is rather explicit: "A name which is not accepted by the author who published it.... is not validly published." How can we say that an anonymous author is not simply joking and accepts definitively his own publication when he veils his identity so cautiously. For us, it is the "established custom" to cite with every name an author, the identity of whom, is known. And for this reason, our good principle IV allows us to reject this name, and at the same time find a good example to illustrate its decree.

No doubt we have here a Barnumesque state of affairs. I have even the suspicion that Phineas Taylor Barnum himself is the author of this "gigantic" fraudulous joke. The name *Americus gigantea* is in the true Barnumesque tradition. The "25 cents' price, half for children" is again in the Barnum style. Not many years previous to 1854, that Barnum had bought an old colored woman to exhibit (at the same tariff) as the George Washington nurse. A master bluffer, the king of fakers, nobody better than himself could have invented the *Americus gigantea*. Although dependent on publicity, he had perhaps to remain anonymous in the present instance because of some top hat of the Union Club or perhaps for some personal satisfaction. A professional faker must occasionally indulge in private or anonymous fakes. In 1855, Barnum published his *Memoirs*. I should be very curious to lay my hands on the volume and find there, perhaps, the solution of the *Americus gigantea* case.

We should not follow St. John and Krauss' suggestion and place *Americus gigantea* in the list of the "Nomina generica rejicienda". We have in it such a good example to illustrate Principle IV! Why discard it?

NOMINA GENERICA CONSERVANDA PROPOSITA

(1). Proposal for the conservation of the generic name 7662 **Arrabidaea** DC. (Bignoniaceae) in Bibl. Univ. Genève, n.s., 17 : 126 (Sept. 1838) versus *Pentelesia* Raf. Sylva Tellur. 146 (1838).

Arrabidaea DC. (Bignoniaceae): nom. cons. prop.

Adopted by: Meissn., Gen. 299 (1840), Comm. 207 (1840); De Candolle Prodromus 9 : 183 (1845); Benth. et Hook. fil. Gen. Pl. 2 : 1032 (1876); Baillon, Hist. Pl. 10 ; 27 (1891); K. Schum. in Engl. et Prantl, Pflanzenfam., 4, 3 B : 213 (1894); Bur. et K. Schum. in Mart. Fl. Bras. 8, pars 2 : 19 (1896); Sandwith in Pulle, Fl. Suriname 4, part 2 : 8 (1938); Seibert in Carnegie Inst. Wash. Publ. 522 : 402 (1940).

Type species: *Arrabidaea rego* (Vell.) DC. (sphalm. A. *sego,* taken from *Bignonia sego* Vell. Fl. Flum. 6, *t.* 39 (1827), which is itself an error for *Bignonia rego* Vell. Fl. Flum. text, 249 (1825), the name being derived from the vernacular name "Sipó-rego".)

Pentelesia Raf. (Bignoniaceae): nom. rej. prop.

Adopted by: Merrill, Index Rafinesquianus, 23, 220 (1949).

Type species: *Pentelesia discolor* Raf., an illegitimate name-change since this monotypic genus is based on *Bignonia carichanensis* H.B.K. = *Arrabidaea carichanensis* (H.B.K.) Bur. et K. Schum.

Discussion: Rafinesque's genus *Pentelesia* was monotypic and has been adopted only by Merrill, solely for the purpose of his Index Rafinesquianus. About 100 species have been described under *Arrabidaea,* a universally accepted name. In the absence of evidence as to the month of 1838 in which the Sylva Telluriana, Cent. X, was published, it is desirable and necessary to conserve *Arrabidaea.*

Proposed by: N. Y. Sandwith (Kew).

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(2). Proposal for the conservation of the generic name 7665 **Anemopaegma** Mart. ex Meissn. (Bignoniaceae) Gen. 300 (1840), Comm. 208 (1840), sphalm. *Anemopaegmia,* versus *Cupulissa* Raf. (Bignoniaceae) Fl. Tellur. 2 : 57 (1837), and *Platolaria* Raf. (Bignoniaceae) Sylva Tellur. 78 (1838).

Proposed by: E. D. Merrill and N. Y. Sandwith.

Documentation: Merrill and Sandwith in Journ. Arnold Arb. 28 : 430-434 (1947); Merrill, Index Rafinesquianus, 219-220 (1949).

Type species: *Anemopaegma mirandum* (Cham.) DC. (1845), a synonym of *A. arvense* (Vell.) Stellfeld ex de Souza in Trib. Farm., Bras. 13 : 275 (1945).

Note: since Prof. Merrill and I wrote our article in 1947, I have discovered that the earliest valid publication of *Anemopaegma* wrongly formed as *Anemopaegmia*) was in Meissner's "Genera", in 1840, a fact not shown by Dalla Torre and Harms or other authors. The type species is clearly indicated as *Bignonia miranda* Cham. in Meissner's "Commentarium", which is the second part of his "Genera". — N. Y. Sandwith (Kew).

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(3). Proposal for the conservation of the generic name 7679 **Phaedranthus** Miers (Bignoniaceae) in Proc. Roy. Hort. Soc. 3 : 182 (1863) versus *Sererea* Raf. Sylva Tellur. 107 (1838).

Phaedranthus Miers (Bignoniaceae): nom. cons. prop.

Adopted by: Baillon, Hist. Pl. 10 : 36 (1891); K. Schum. in Engl. et Prantl, Pflanzenfam. 4, 3B : 219 (1894); Standley, Trees and Shrubs of Mexico, 1316 (1926); Bailey, Standard Cycl. Hortic. 3 : 2568 (1939); Bailey, Man. Cult. Pl., revised ed., 902 (1949); Roy. Hort. Soc. Dict. of Gardening, 3 : 1538 (1951).

Type species: *Phaedranthus lindleyanus* Miers, now treated as a synonym of *P. buccinatorius* (DC.) Miers.

Sererea Raf. (Bignoniaceae): nom. rej. prop.

Adopted by: Merrill, Index Rafinesquianus, 23, 220 (1949).

Type species: *Sererea heterophyla* [*sic*] Raf. with *Bignonia heterophylla* Willd. and *B. cherere* Aubl. (both misidentifications, quoted from Lindley, *vide infra*) cited in synonymy.

Discussion: the description of *Sererea* Raf. is taken from Lindley's description and plate of his *Bignonia cherere* Aubl. in Bot. Reg. *t. 1301* (1829), which is also the basis of Miers' genus *Phaedranthus.* Lindley's identification of the plant figured and described by him with Aublet's *Bignonia kerere,* and thus with *Bignonia heterophylla* Willd. (an illegitimate name-change), was an error, Aublet's *B. kerere* being the widely different plant now known as *Pachyptera kerere* (Aubl. em. Splitg.) Sandwith in Rec.

Trav. Bot. Néerl. 34 : 219 (1937), Merrill was in error (Index Raf. pp. 23, 220) in stating that *Sererea* = *Pithecoctenium* Mart. Both *Sererea* and *Phaedranthus* are monotypic genera by present taxonomic concepts, but *Sererea* has been adopted only by Merrill and solely for the purpose of his Index Rafinesquianus, whereas *Phaedranthus* is the generic name universally given to the well-known cultivated species, *Phaedranthus buccinatorius* (DC.) Miers.

Proposed by: N. Y. Sandwith (Kew).

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(4). Proposal for the conservation of the generic name 7732 **Tabebuia** Gomes ex DC. (Bignoniaceae) in Bibl. Univ. Genève, n.s., 17 : 130 (Sept. 1838) versus *Leucoxylon* Raf., Sylva Tellur. 77 (1838), and *Potamoxylon* Raf., l.c. 78, and *Proterpia* Raf., l.c. 80.

Tabebuia Gomes ex DC. (Bignoniaceae): nom. cons. prop.

Adopted by: Meissn., Gen. 300 (1840), Comm. 208 (1840); De Candolle, Prodromus 9 : 212 (1845); Benth. et Hook. fil., Gen. Pl. 2 : 1042 (1876); Baillon, Hist. Pl. 10 : 42 (1891); K. Schum. in Engler et Prantl, Pflanzenfam. 4, 3B : 236 (1894); Bur. et K. Schum. in Mart. Fl. Bras. 8, pars 2 : 308 (1897); Rehder in Mitt. Deutsch. Dendr. Ges. 13 : 262 (1913); Urban in Fedde, Rep. Spec. Nov. 14 : 304 (1916); Standley, Trees and Shrubs of Mexico, 1320 (1926), and in "Tropical Woods", 36 : 16 (1933); Sprague et Sandwith in Kew Bull. 1932, 18; Sandwith in Pulle, Fl. Suriname, 4, part 2 : 66 (1938); Seibert in Carnegie Inst. Wash. Publ. 522, p. 388 (1940).

Proposed lectotype species: *Tabebuia uliginosa* (Gomes) DC., see below in discussion.

Leucoxylon Raf. (Bignoniaceae): nom. rej. prop.

Adopted by: Merrill, Index Rafinesquianus, 220 (1949).

Type (proposed lectotype) species: *Leucoxylon riparia* Raf., Sylva Tellur. 77 (1838) = **Tabebuia riparia** (Raf.) Sandwith, comb. nov. This is apparently the correct name for the "White Wood" of Jamaica, originally described as *Bignonia leucoxylon* L. Sp. Pl. ed. 1. 624 (1753). The legitimate specific epithet in *Tabebuia* was uncertain, see Sandwith in Kew Bull. 1953, 453-454 (1954). Rafinesque says that his species is "a fine tree of Jamaica on streams, flowers rosate, the B. leucoxylon of Swartz and others", and his description is obviously taken from Swartz, Obs. Bot. 233 (1791). Rafinesque's second species of *Leucoxylon*, viz. *L. acuminata* Raf., is evidently based on the *Bignonia leucoxylon* L. Sp. Pl. ed. 2, 870 (1763) which, as I pointed out in Kew Bull. 1953, 453, is a later homonym of the *B. leucoxylon* L. Sp. Pl. ed. 1, 624. As I am still uncertain of the interpretation of this second *B. leucoxylon* L., I do not propose *L. acuminata* as the lectotype species of the genus *Leucoxylon* Raf.

Rafinesque's name *Leucoxylon* should doubtless be regarded as an orthographic variant, and therefore a later homonym, of *Leucoxylum* Blume (Ebenaceae) Bijdr. 1169 (1826). Nevertheless, the present wording of Article 82 of the Code apparently permits the use of both names, since the plants are not related and belong to different families. At present, then, the rejection of *Leucoxylon* Raf. still seems to be required.

Potamoxylon Raf. (Bignoniaceae): nom. rej. prop.

Adopted by: Pichon in Bull. Soc. Bot. France, 92 : 228 (1945); Merrill, Index Rafinesquianus, 23, 220 (1949).

Type species: *Potamoxylon alba* Raf., an illegitimate name-change, since this monotypic genus is based on *Bignonia fluviatilis* Aubl., hence the renaming as *P. fluviatile* (Aubl.) Pichon.

Proterpia Raf. (Bignoniaceae): nom. rej. prop.

Adopted by: Merrill, Index Rafinesquianus, 220 (1949).

Type species: *Proterpia obtusifolia* (Lam.) Raf.

Discussion: the authorship of the large and important genus *Tabebuia* (in its modern sense, including *Tecoma* Juss., partim sensu Seem., K. Schum., and Bur. et K. Schum., and *Couralia* Splitg., see Sprague and Sandwith in Kew Bull. 1932, 18) has been constantly attributed to Gomes (sometimes spelled Gomez, or Comes) by writers such as Bentham and Hooker, Bureau and Schumann, Rehder, Urban, Sprague and Sandwith, and Merrill, who have followed De Candolle's citations in Bibl. Univ. Genève, n.s. 17, 130 (1838) — reprinted in Ann. Sci. Nat. sér. 2, 11, 292 (1839) — and Prodr. 9, 212 (1845). Reference, however, to Bernardino Antonio Gomes's work, which perhaps was never consulted by any of the above-mentioned writers, shows that the word "Tabebuia" on pages 57 (7) and 59 (9), and under tab. 2, of the second part of Gomes's Observationes Botanico-Medicae de Nonnul-

lis Brasiliae Plantis, first published apparently in 1803 and later reprinted in vol. 3, part 1, of the Memorias de Mathematica e Physica da Academia R. des Sciencias de Lisboa in 1812, was used purely as the vernacular name of the tree which Gomes was describing and figuring as a new species, *Bignonia uliginosa*.

"*Tabebuia* Ant. Gomèz [*sic*]" was thus first used as the Latin name of a genus by De Candolle in his "Revue Sommaire de la Famille des Bignoniacées" published in the Bibliothèque Universelle de Genève, n.s., vol. 17, the name appearing on page 130. The date of publication was September, 1838, as is indicated in the footnote on p. 279 of Ann. Sci. Nat. sér. 2, 11, 292 (1839) where De Candolle's "Revue Sommaire" was reprinted with certain changes introduced by the author.

De Candolle referred to Gomes's description and plate, but gave no formal description himself. It is evident that he thought that Gomes had been describing a new genus whereas, as I have explained above, he was merely describing a new species of *Bignonia*. De Candolle did, however, effect valid publication of the generic name *Tabebuia* by contrasting the genus with *Zeyhera*, which he distinguished from *Tabebuia* by characters of the calyx and corolla, as well as by its habit and fruit (that of *Tabebuia* being unknown to him but almost certainly, from the evidence of the ovary, different from that of *Zeyhera*). De Candolle maintained "Gomes's genus" with doubt and referred to it provisionally 7 species, the first in order being *T. uliginosa*, which was the species of Gomes and was also figured, as he said, in Vellozo's Flora Fluminensis under the name *Bignonia tabebuia* (but Vellozo adopted the spelling *tababuya*, see text p. 252, plates vol. 6, t. 53). *Tabebuia uliginosa* (Gomes) DC., which I propose as the lectotype species of the genus, was placed in the synonymy of *T. cassinoides* (Lam.) DC. by Bureau and Schumann, Mart. Fl. Bras., 8, pars 2, 309 (1897). It is strange that De Candolle should have regarded *Tabebuia* as so closely related to *Zeyhera*, which has quinate-digitate leaves, whereas none of his 7 species of *Tabebuia* has such leaves (apart from his *T. uliginosa* and *T. leucoxyla*, with simple leaves, the remaining species are now referred to climbers with compound — but never digitate — leaves in the tribe *Bignonieae*).

The date of the valid publication of *Tabebuia* being now established as Sept. 1838, and not as 1803, as has previously been accepted by many authors, it becomes necessary to conserve it against *Leucoxylon* Raf., Sylva Tellur. Cent. V. 77 (1838), *Potamoxylon* Raf., l.c. 78, and *Proterpia* Raf., l.c. 80, see Merrill, Index Rafinesquianus, 220 (1949), since Merrill does not say in which month of 1838 the Sylva Telluriana (and, in particular, its Cent. V.) was published. The genera *Leucoxylon* (2 species) and *Proterpia* (1 species) have been adopted only by Merrill, and by him solely for the purpose of his Index Rafinesquianus. *Potamoxylon* (1 species), which is based on the same type as the later (1842, not 1841, as stated by Merrill) *Couralia* Splitg., was similarly listed by Merrill, and has also been adopted on one occasion by one author, Pichon (see above), who either was ignorant of or did not accept the reduction of *Couralia* to *Tabebuia* (see Kew Bull. 1932, 18) by Sprague and Sandwith. *Tabebuia*, on the other hand, as understood in its contemporary sense which is accepted, I believe, by most botanists, has some 100 described species.

Proposed by: N. Y. Sandwith (Kew).

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(5). Proposal to conserve the generic name 7741 **Dolichandrone** (Fenzl) Seemann (Bignoniaceae) in Ann. and Mag. Nat. Hist. ser. 3, 10 : 31 (1862) versus *Pongelia* Raf. (Bignoniaceae) Sylva Tellur. 78 (1838).

Dolichandrone (Fenzl) Seem. (Bignoniaceae): nom. cons. prop.

Adopted by: F. Mueller, Fragm. Phyt. Austral. 4 : 149 (1864); Benth. et Hook. fil. Gen. Pl. 2 : 1046 (1876), partim; C. B. Clarke in Hook. fil. Fl. Brit. India, 4, pt. 2 : 378 (1884); Baillon, Hist. Pl. 10 : 48 (1891); K. Schum. in Engl. et Prantl, Pflanzenfam. 4, 3 B : 240 (1894); Trimen, Handbook Fl. Ceylon, pt. 3 : 282 (1895); Sprague in Kew Bull. 1919, p. 303; Ridley, Fl. Malay Penins., 2 : 548 (1923); Merrill, Enum. Philippine Fl. Pl. 3 : 444 (1923); van Steenis, Malayan Bignoniaceae, in Rec. Trav. Bot. Néerl. 24 : 928 (1927); Corner, Wayside Trees of Malaya, 163 (1940).

Type species: *Dolichandrone spathacea* (L. fil.) K. Schum. (1889). The basonym, *Bignonia spathacea* L. fil., was quoted as the type of *Dolichandrone* by Seemann (Journ. Bot. 1 : 226, quoted by Sprague, l.c.). The genus was based on Fenzl's section

Dolichandrone of *Dolichandra* Cham. Sprague oversimplified the situation in stating that Fenzl's group "contained two Australian Bignoniaceous trees, *Spathodea heterophylla* R. Br. and *S. alternifolia* R. Br." Fenzl gave a few words of description taken from the fruit, and then cited "*Spathodea* b. Endl. l.c. (excl. syn. Palisot) R. Brown *prod.* 471". Fenzl's Latin words of description, with a single addition (*crasso*), are indeed taken from Endlicher, Gen. Pl. 712. Endlicher's descriptive phrase appears to be original, taken as a whole, though individual words are derived from various authors such as Robert Brown and Kunth, and the citations which follow do not include Robert Brown's Prodromus Fl. Holland. Nevertheless, Fenzl's citation appears to restrict his group to the *Spathodea* of the latter work. When we examine this (p. 472), we find that Robert Brown makes the observation, after his generic description, that the character of the fruit is taken "e Bignonia spathacea L. necnon e Ligno equino *Rumph.* 3. *p.* 73. *t.* 46. et Spathodea (?) alternifolia". "Lignum equinum" of Rumphius, l.c., is *Dolichandrone spathacea* (L. fil.) K. Schum., see Merrill, Interpr. Rumph. Herb. Amboin. 469 (1917). Thus Robert Brown's generic description does not cover only his two Australian species. As for *Spathodea* (?) *alternifolia*, which is the second of those species, it is a somewhat obscure taxon, and according to Seemann (Journ. Bot. 8 : 382) no authentic specimen exists. It cannot, then, be considered for the purpose of selecting the type species of *Dolichandrone*, and the choice must go to *D. spathacea*, since Fenzl's diagnosis of the group was based solely on characters of fruit. *D. spathacea* falls within van Steenis's subgenus *Membranaceae*, which by the present Code should be renamed subgenus *Dolichandrone*.

Pongelia Raf. (Bignoniaceae): nom. rej. prop.

Adopted by: Merrill, Index Rafinesquianus, 23, 220 (1949).

Type species: *P. longiflora* (Pers.) Raf., based on an illegitimate name-change, *Spathodea longiflora* Pers., for *Bignonia spathacea* L. fil. (= *Dolichandrone spathacea* (L. fil.) K. Schum.). It is clear that the basonym of *P. longiflora* Raf. is *Spathodea longiflora* Pers. Syn. 2 : 173 (1806) rather than *S. longiflora* Vent. Choix, 40 (1803), which was a similar illegitimate name-change for *B. spathacea*.

Discussion: *Dolichandrone*, which is universally adopted, has been carefully defined by Sprague and van Steenis (l.c. supra), and has 9 species occurring in three continents of the Old World. The monotypic *Pongelia* was based on the same type species as *Dolichandrone*. It has been adopted by no-one since the date of its publication except by Merrill for the sole purpose of his Index Rafinesquianus.

Proposed by: N. Y. Sandwith (Kew).

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(6). Proposal to conserve the generic name 7761 **Kigelia** DC. (Bignoniaceae) in Bibl. Univ. Genève, n.s., 17 : 135 (Sept. 1838) versus *Kigelkeia* Raf. (Bignoniaceae) Sylva Tellur. Appendix 166 (1838).

Kigelia DC. (Bignoniaceae): nom. cons. prop.

Adopted by: Meissn., Gen. 301 (1840), Comm. 211 (1840); De Candolle, Prodromus 9 : 247 (1845); Benth. et Hook. fil., Gen. Pl. 2 : 1053 (1876); Baillon, Hist. Pl. 10 : 56 (1891); K. Schum. in Engl. et Prantl, Pflanzenfam. 4, 3B, p. 248 (1895); Sprague in Thistleton-Dyer, Fl. Trop. Africa 4, sect. 2 : 533 (1906); Hutchinson and Dalziel, Fl. W. Trop. Africa 2 : 238 (1931); Brenan and Greenway, Check-List of Forest Trees and Shrubs of Tanganyika Territory, 71 (1949).

Type species: *Kigelia pinnata* (Jacq.) DC. (1845).

Kigelkeia Raf. (Bignoniaceae): nom. rej. prop.

Adopted by: Merrill, Index Rafinesquianus, 23, 220 (1949).

Type species: *K. pinnata* (Jacq.) Raf.

Discussion: the genus *Kigelia* DC. was validly published for the first time in September, 1838, in the Bibliothèque Universelle de Genève, vol. 17, p. 135 (reprinted in Ann. Sci. Nat. sér. 2, 11 : 297, in the following year), and not in the Prodromus, vol. 9, p. 247 (1845) as was stated in the Index Kewensis and by Merrill in the Index Rafinesquianus. As the date of publication in the year 1838 of Rafinesque's Sylva Telluriana appears to be uncertain or unknown, it is advisable to conserve the well-known generic name *Kigelia* DC. against the monotypic *Kigelkeia* Raf. which was published in the same year. The two names are based on the same type species. No-one, so far as I know, has adopted *Kigelkeia* with the exception of Merrill, who did so solely for the purpose of his Index Rafinesquianus. It is

obviously desirable to preserve the familiar name *Kigelia* for the "Sausage Tree" of tropical Africa.

Proposed by: N. Y. Sandwith (Kew).

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(7). Proposal for the conservation of the generic name **Malacocarpus** Salm-Dyck of the *Cactaceae*: *Malacocarpus* Salm-Dyck in Cact. Hort. Dyck. ed. 2 : 24, 141 (1850) versus *Malacocarpus* Fisch. & Mey. in Ind. Hort. Petrop. **9** : 78 (1843) of the *Rutaceae*.

Malacocarpus Salm-Dyck, 1850.

Adopted by: Krook, Handb. Cact. 67 (1855); C. Lemaire, Les Cactées, 52-54 (1868); Rümpler in Förster, Handb. Cact. ed. 2, 454 (1885); K. Schumann in Rümpler, Die Sukkulenten, 173 (1892); Rodrigues in Pl. Mattogr. 29 (1898); Br. & Rose, Cactaceae 3 : 187 (1922); A. Berger, Die Entwicklungslinien der Kakteen, 66, 96 (1926); C. R. Orcutt, Cactography, pt. 1 :7 (1926); C. Backeberg, Blätt. f. Kakteenf. (1934-1938); Backbg. & F. M. Knuth, Kaktus-ABC : 250 (1935); Kreuzinger, Verzeichn. Amer. Sukkulent., 7 (1935); Borg, Cacti ed. 1., 254 (1937); W. T. Marshall & T. M. Bock, Cactaceae, 156 (1941); C. Backbg. in Cactaceae, Jahrbücher der Deutsch. Kakteengesellschaft, 1941, pt. 2 : 36 (June 1942); Borg, Cacti, ed. 2 : 312 (1951).

Number of species: c. 12 S. America.

Type species: *Echinocactus corynodes* Pfeiff.

Malacocarpus Fisch. & Mey. 1843.

Number of species: 1.

Adoption: apparently only by its authors.

Argument: By strict application of the Code, *Malacocarpus* Salm-Dyck is an illegitimate later homonym of *Malacocarpus* Fisch. & Mey., but long ago this latter genus was reduced to synonymy under *Peganum* L. Renaming of Salm-Dyck's genus can serve no useful purpose and it is formally proposed that any objection to its continued use be removed by conserving the generic name *Malacocarpus* Salm-Dyck in *Cactaceae*.

Proposed by: R. S. Byles (Radlett, Herts. G.B.).

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(8). Proposal for the conservation of the generic name 4667 **Euscaphis** Sieb. et Zucc. (Staphyleaceae) (1840) against *Hebokia* Raf. (1838).

The previous proposal was rejected by the Special Committee for Phanerogamae, because the Committee thought that *Euscaphis* Sieb. et Zucc. was published in 1835, and that the conservation was therefore unnecessary *). The title pages of Sieb. et Zucc. Flora Japonica Vol. 1 & 2 bear the dates 1835 & 1870 respectively, but they were actually published in 30 parts and the dates of their publication were given by Tucker in Journ. Arn. Arb. 2 : 237-239 (1921), Nakai in Bot. Mag. Tokyo 40 : 361-363 (1926), Koidzumi in Acta Geobot. Phytotax. 2 : 68-69 (1933), and recently by Stearn in Fl. Malesiana ser. I, 4 (5) : CCXIII (1954).

They may be summarized as follows:

Vol.	Part	Plates	Dates
I	1-2	1-10	1835
	3-4	11-20	1836 (or 1837)
	5	21-25	1837 (or 1838)
	6	26-30	1838 (by Oct.)
	7-8	31-40	1839 (prob. Mar.)
	9-10	41-50	1839 (prob. Apr.)
	11-12	51-60	1839 (or 1840)
	13	61-65	1839 (or 1840)
	14	66-70	1840
	15-16	71-80	1840 (or 1841)
	17-18	81-90	1841
	19-20	91-100	1841 (by June)
II	1-3	101-115	1842 (or 1843)
	4-5	116-127	1844
	6-10	128-150	1870

Thus *Euscaphis*, included in Part 14, was published in 1840 and it should be conserved against *Hebokia*.

Euscaphis Sieb. et Zucc., Fl. Jap. 1 : 122, *t. 67* (1840).

Type: *Euscaphis staphyleoides* Sieb. et Zucc. = *E. japonica* (Th.) Kanitz.

Adopted by: Endl., Gen. 2 : 1084 (1840); Bentham & Hooker f., Gen. Pl. 1 : 412 (1862); Pax in Engl. Pfl.-fam. III-5 : 262 (1893); Dalla Torre & Harms, Gen. Siphon. 292 (1901); Schneider, Ill. Handb. Laubh. 2 : 187 (1907); Rehder & Wilson in Pl. Wilson. 2 : 187 (1914); Kanehira, Formos. Tr. ed. 2, 398 (1936); Rehder, Man. Cult. Tr. & Shr. ed. 2, 565 (1940); Bibl. Cult. Tr. & Shr. 412 (1949); Ohwi, Fl. Jap. 742 (1953).

Hebokia Raf., Alsogr. Amer. 47 (1838).

Type: *H. japonica* (Th.) Raf. (*Sambucus japonica* Th.).

Adopted by: no author traced.

Discussion: *Euscaphis* Sieb. et Zucc. was published with a detailed description and illustration, and has since been used consistently in many publications, whereas

*) In Taxon Vol. 3 (4) : 118 (1954), the date was *misprinted* as 1839.

Hebokia Raf. (with an inadequate description) has never been adopted. The genus includes only two species, very common trees in Japan and China, and sometimes cultivated in Europe and N. America. Since the name *Euscaphis* is commonly used in many floristic and dendrological works in Japan and China, its conservation was proposed by Rehder (1949) and by a group of Japanese botanists (1950).

Proposed by: H. Hara (Tokyo).

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"Taxon" is directed by: Prof. J. Lanjouw, Chief Editor, and Dr F. A. Stafleu, Assistant Editor. All correspondence should be sent to the International Bureau for Plant Taxonomy and Nomenclature, 106 Lange Nieuwstraat, Utrecht — Netherlands.
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